BLM NEWS

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WINDMILLS WORK FOR AREA FISHERIES

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CUSTER COUNTY – It's not what you'd call a "typical" windmill. Standing shy of 20 feet tall it harnesses the seemingly endless supply of prairie wind to do its job. However, instead of pumping water to the surface, it pumps air--- under the surface of a few local reservoirs.

In this instance, it will be the aquatic residents, instead of the terrestrial denizens of eastern Montana that will reap some wind-driven benefits.

The idea to harness the wind to aerate local Bureau of Land Management (BLM) reservoirs was hatched by Joe Platz, a fishery biologist who works for the BLM in Miles City. Platz formed the notion after a discussion with a local rancher who voiced concern over winter killed fish within the area of his operations. After some consideration, Platz followed up with a visit to inspect some fish-friendly windmills operating in the Havre area and hatched an idea for the Miles City Field Office. A convincing pitch to his superiors, some wrangled funding and voila. Windmill aeration was on its way.

A typical challenge for fisheries managers in eastern Montana is keeping fish alive and growing in small ponds and reservoirs through the winter. Water levels, heat, organic decomposition and ice are factors in dissolved oxygen levels, which if they drop too low, kill fish. Although restocking is a frequent option, the fish rarely survive the winter.

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"Winter kill has the biggest impact on these reservoirs," said Platz. "Fish are usually hit first, as far as low dissolved oxygen levels are concerned. Aquatic insects are usually better than fish at surviving, but they can winterkill also."

That is where the windmills come into play. According to the manufacturer, Koenders Windmills Inc. from Saskatchewan, the 12-foot tower supports a 12-blade turbine which harnesses winds as low as 5 mph. The crankshaft provides a ½ inch stroke on a 9-inch diaphragm, producing 1.5 cubic-feet of air per minute at 5 pounds per square inch.

The pressurized air is pumped through 3/8-inch plastic tubing to a 9-inch air stone anchored in the bottom of the pond or lake and ejects a fine column of bubbles. The bubble cloud injects oxygen and de-stratifies the stagnant, oxygen deprived under-layer.

The rising bubbles also bring accumulated, fish-toxic gases from the bottom to the surface. Hydrogen sulfide, ammonia and carbon dioxide--- dissipate into the atmosphere. This type of pond aeration can increase zooplankton production while decreasing the abundance of the blue-green algae which causes the mid-summer "pea-soup" conditions which may become toxic to wildlife and livestock.

When the temperatures drop, the windmills use a back pressure monitoring, automatic drip system that releases isopropyl alcohol to thaw the air line. The entire apparatus--- windmill and all, is surrounded by a fence to keep livestock from damaging the tower.

However, another by-product of aeration is thin pond ice during the winter. During freeze up, the constant release of bubbles tends to create an ice free area in the middle of the reservoir. The warmer water circulated from the bottom of the reservoir tends to keep the water body open well-past normal ice-over periods.

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This can be a hazard as during periods of calm. The reservoir may form thin ice, only to melt again once the wind picks up and the windmill renews pumping. Winter visitors to these areas should be extra cautious and avoid getting on the ice, cautioned Platz.

So far, the BLM has erected three windmills. Locations include Boulware Reservoir in the Knowlton area and the Silvertip and Grant reservoirs north of Terry. More windmills are in the works.

"Our hope is that we'll be able to hold over fish ---and grow bigger fish," explained Platz.

And as long as the wind blows in eastern Montana, that remains a distinct possibility.

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CUTLINES:
Reservoir aeration windmill at Boulware Reservoir, 54 miles east of Miles City;

Windmill Sign pic1 and pic2: Boulware Reservoir, Nov. 23 --- WINDPOWER FOR FISH---The wind-generated aeration system needs only a 5 mph breeze in order to keep five-acre feet of water oxygenated. A by-product of aeration is thin ice. Individuals are encouraged to avoid an unpleasant soaking by staying on dry ground during the winter months.